

# The intention of organ donation among nursing academics: Influence of knowledge on decision

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**Abstract—** Objective: to investigate the knowledge, opinion, and intention of students from a private university in Belém do Pará, Brazil, about the donation of organs and tissues for transplantation. Method: Cross-sectional, population-based, descriptive study with a quantitative approach. Result: The sample consisted of 302 students, in which it was evidenced that the intention regarding the donation of organs and tissues for transplantation is positive, since 55.8% of the participants intend to donate some organ or tissue. However, it was found that some demographic, socioeconomic and cultural factors can influence this decision. With this study, it was possible to identify the level of knowledge and the intentions of the population about the donation of organs and tissues for transplantation, making it essential to raise awareness among the population through training and information campaigns. Conclusion: Although the majority of participants knew and supported the donation of organs and tissues, there is still a great lack of confidence in the health system, in the diagnosis of brain death and a strong presence of beliefs and myths, such as fear of having the body multiplied..

**Keywords—** Transplantation, Tissue and organ procurement, Knowledge e Education, Nursing, baccalaureate.

## I. INTRODUCTION

Transplantation is a complex process, which begins with the identification and maintenance of possible donors in brain death, capable of donating the following organs and tissues: heart, lungs, liver, kidneys, pancreas, intestines, corneas, skin, bones, tendons, bone marrow and veins. Regarding the living donor, there are rules to be followed, such as: the donor must have a blood relationship of up to four degrees with the recipient, in addition to undergoing various pathological tests and tests of liver, kidney and lung function<sup>1</sup>.

Currently, the supply of organs and tissues available for transplantation is insufficient to meet the global demand of patients who need this procedure<sup>2</sup>. Despite government initiatives to educate the population about the importance of donation, prejudices, and fears about this process still persist<sup>3</sup>. Therefore, it is essential to understand the reasons that make donation unfeasible, since organ and tissue transplantation is considered an effective therapy for several chronic and disabling pathologies, as well as for the rehabilitation process and increased life expectancy<sup>4</sup>.

In addition, it is understood that the intention to donate organs after death goes through abrupt and unpredictable moments, since the feelings of loss are immeasurable within the family of the potential donor. Therefore, in the final phase of life, the intensive care team's mission is to approach bereaved family members, contextualizing and reporting the possibility of organ donation in a multidisciplinary and timely manner. However, this process represents a challenging practice that requires health professionals to feel compassion, empathy, and knowledge to meet the care needs of the bereaved family and the potential donor<sup>5</sup>.

Given this reality, and based on the relevance of the subject, this study aims to investigate the knowledge and intention of nursing students about organ and tissue donation for transplants.

## II. METHOD

Descriptive, cross-sectional, population-based cohort study with a quantitative approach, conducted at a private university located in the metropolitan region of Belém,

state of Pará, Brazil, in April 2019. The sample consisted of all students enrolled in the 1st, 3rd, 5th, 7th, 8th, 9th and 10th semesters of the nursing course, totaling 1,230 students. A 5% margin was adopted as a sampling error, with a 95% confidence level, establishing as an initial sample 302 students who signed the Free and Informed Consent Term, with the appropriate guidelines and who composed the final version of this research.

A questionnaire composed of double fragmentation was used, divided into parts (A) and (B). Part (A) aimed to identify the sociodemographic profile of students, while part (B) aimed to relate specific questions about organ and tissue donation for transplantation, as factors that influence decision, intention to donate and death cerebral.

The data were stored in the Windows® Office Access 2018 software and the results were presented in tables. Statistical processing was performed using the Bioestat® 5.38 and Statistical Package for the Social Sciences® (SPSS) 22.0 software. In addition, to describe the sample profile of the 302 students, frequency tables of categorical variables were prepared with the values of absolute frequency (n), percentage (%) and descriptive statistics of continuous variables (age, sex, etc.) with minimum, average, maximum and standard deviation values.

When comparing categorical variables, chi-square adherence tests were used. The analysis of variance (ANOVA) and the "Student's T test" were applied to compare the performance in the knowledge test according to the semester. The level of significance adopted for the statistical tests was 5% ( $p < 0.05$ ) for rejection of the null hypothesis.

This research was carried out based on the National Health Council (CNS), based on resolutions 466/2012 and 510/2016 of the National Council for Ethics and Research (CONEP). Thus, the research was authorized by the Ethics and Research Committee (CEP) of the Campinense Institute of Higher Education (ICES-UNAMA), under CAEE: 06943018.2.0000.5173, and with the ethics committee opinion number: 3,658,687.

### III. RESULTS

The final sample consisted of 302 students, of whom, it was observed that the intention to donate organs and tissues represented a positive result, since 81.1% stated that they intend to donate some organ or tissue in their body. Among these students, 55.5% were between 17 and 26 years old, however, this age group was still predominant in 56.5% of the students who declared that

they did not intend to donate their organs. Therefore, there seems to be no statistically significant association ( $p > 0.05$ ) between the intention to donate organs and tissues and the age group, as shown in Table 1.

As for questions about the authorization of organ donation from a deceased family member, who was classified as a potential donor and who had shown an interest in donating their organs in advance, it was found that 91.1% of respondents would authorize the donation of organs of that relative.

Furthermore, similar results were observed when the participants were asked about the authorization for donation of organs from a family member who received the diagnosis of brain death, in this case, 80.1% of the interviewees stated that they would authorize the donation, however, only 47, 4% of respondents stated that they would authorize the donation if the deceased relative had not discussed the matter. Therefore, these results demonstrate a trend, statistically, favorable to donation when this topic is discussed in the family environment ( $p < 0.05$ ), as shown in Table 2.

Appropriately, when participants answer specific questions related to organ donation, these responses respond favorably to this process, since 81.1% of students intend to donate an organ in their body, 82.5% authorize the donation of their organs after death, 86.4% of the organs or parents in life, if they were not harmed. In addition, it is questioned that 64.9% of the interviewees informed a close relative about the intention of their organs or had already talked to a relative about this subject, 74.5% demonstrated satisfactory knowledge about brain death studies and 48% affirm that a person is diagnosed with brain death only when he or she experiences total brain failure.

In continuity, it was also observed that 48% of the interviewees understand that the lack of knowledge on the topic is the main reason that leads people not to donate their organs after death, 51.7% fully trust the criteria used for the diagnosis of brain death, 52.3% believe there are organ sales in Brazil, 74.5% report that the average waiting time in the transplant queue is more than 3 years and 55.3% believe that purchasing power does not influence the person who receives a transplant, as shown in table 3.

Table 1: Age group regarding the intention to donate organs and tissues after death. Belém / PA, 2019

Age range	Do you intend to donate any organ in your body?						Total		p- Value <sup>(1)</sup>
	Yes		No		Do not know				
	n	%	n	%	n	%	n	%	
17-26	136	55,5	13	56,5	22	64,7	171	56,6	X <sup>2</sup> = 12.128 P = 0.059ns
27-36	71	29,0	5	21,7	4	11,8	80	26,5	
37-46	34	13,9	5	21,7	5	14,7	44	14,6	
47-56	4	1,6	0	0,0	3	8,8	7	2,3	
Total	245	81,1	23	7,6	34	11,3	302	100,0	

Source: Research protocol (2019).

<sup>(1)</sup>Pearson's Chi-square test (Wilks' G<sup>2</sup>) for association (p-value <0.05).

\*Significant Values; NS - Non-Significant Values.

Table 2: Intention to donate organs and tissues to family members. Belém / PA, 2019.

Intention to donate organs and tissues to family members		n	%	p-Value <sup>(1)</sup>
1 – Imagine that one of your parents warned you about your desire to be an organ donor. The doctor warned that this relative died. Did you authorize this person's organ donation?	Yes	275	91,1	<0.0001*
	No	6	2	
	Do not know	21	7	
2 – Imagine that another close relative of yours warned about your desire to be an organ donor. The doctor warns that this patient has been diagnosed with brain death. Did you authorize this person's organ donation?	Yes	242	80,1	<0.0001*
	No	18	6	
	Do not know	42	13,9	
3 – Imagine that a close relative has not discussed organ donation with you. The doctor warned him that this relative was diagnosed with brain death. Did you authorize this person's organ donation?	Yes	143	47,4	<0.0001*
	No	71	23,5	
	Do not know	88	29,1	

Source: Research protocol (2019).

<sup>(1)</sup>Pearson's Chi-square test (Wilks' G<sup>2</sup>) for association (p-value <0.05).

\*Significant Values; NS - Non-Significant Values.

Table 3: Distribution of specific questions about organ and tissue donation for transplantation. Belém/PA, 2019.

Specific Questions on Organ and Tissue Donation for Transplantation		n	%	p-Value <sup>(1)</sup>
Do you intend to donate an organ in your body?	No	23	7,6	X <sup>2</sup> = 293.655 / P = 0.001*
	Do not know	34	11,3	
	Yes	245	81,1	
Would you authorize the donation of your organs after your death?	No	19	6,3	X <sup>2</sup> = 328.974 / P = 0.001*
	Do not know	34	11,3	
	Yes	249	82,5	
Would you donate organs to relatives or friends in life if you were not going to harm him?	No	21	7	X <sup>2</sup> = 383.053 / P = 0.001*
	Do not know	20	6,6	
	Yes	261	86,4	

Specific Questions on Organ and Tissue Donation for Transplantation		n	%	p-Value <sup>(1)</sup>
Have you alerted a close relative of your intention?	No	106	35,1	$X^2 = 26.821 /$ $P = 0.001^*$
	Yes	196	64,9	
Which relative did you talk to about this subject?	Son or Daughter	7	2,3	$X^2 = 131.81 /$ $P = 0.001^*$
	Brother or Sister	25	8,3	
	Mom	45	14,9	
	Dad	29	9,6	
	Several close relatives	104	34,4	
	Not applicable	106	35,1	
In your opinion, what are the reasons that can lead people to not donate their organs after death?	Ignorance of the theme	145	48,0	$X^2 = 235.351 /$ $P = 0.001^*$
	Selfishness	21	7,0	
	Fear of not being dead	51	16,9	
	Do not believe in the health system	26	8,6%	
	Does not want to have his body mutilated	103	34,1	
	Religion	90	29,8	
	Others	11	3,6	
Is brain death the legal definition of death, that is, is it the complete and irreversible halt of all brain functions?	False	24	7,9	$X^2 = 234.523 /$ $P = 0.001^*$
	Do not know	53	17,5	
	Truth	225	74,5	
When a person is brain dead, they are:	Dead	84	27,8	$X^2 = 234.523 /$ $P = 0.001^*$
	Do not know	44	14,6	
	Partially live	29	9,6	
	Only with the dead brain	145	48,0	
Do you trust the diagnosis of brain death?	Partially Trust	89	29,5	$X^2 = 106.715 /$ $P = 0.001^*$
	I fully trust	156	51,7	
	I do not trust	57	18,9	
Are there organ sales in Brazil?	No	8	2,6	$X^2 = 130.358 /$ $P = 0.001^*$
	Do not know	136	45	
	Yes	158	52,3	
The average waiting time in the transplant queue is:	More than 1 year	56	18,5	$X^2 = 236.43 /$ $P = 0.001^*$
	Over 3 years	225	74,5	
	Less than 1 year	21	7	
Who is most likely to receive a transplant?	Poor	32	10,6	$X^2 = 90.603 /$ $P = 0.001^*$
	Rich	103	34,1	
	Purchasing power doesn't matter	167	55,3	

Source: Research protocol (2019).

<sup>(1)</sup>Pearson's Chi-square test (Wilks' G<sup>2</sup>) for association (p-value <0.05).

\*Significant Values; NS - Non-Significant Values.



#### IV. DISCUSSION

This study presents positive responses regarding the opinion and intention of nursing students to donate organs and tissues for transplantation. Other studies have observed similar results, since in the study by Cardoso<sup>10</sup>, 81.6% of the interviewees reported having the intention to be an organ donor, while in the study by Costa et al.<sup>9</sup> these results were even greater, as 85.2% of nursing students stated that they wish to donate their organs after death.

However, it was found that some demographic, socioeconomic and cultural factors may influence the decision of individuals to donate their organs and tissues or their families after death, such as ignorance of the topic, fear of having their bodies mutilated and for religious reasons.

It was found that, in a supposed diagnosis of brain death or death of a family member of the interviewed academics, the authorization for organ donation is correlated with a previous conversation on the topic, since the rates of academics who would authorize organ donation of a deceased relative, without previous conversation on the subject, is significantly ( $p < 0.05$ ) inferior (47.4%) when compared to the questions that informed the realization of a conversation on the subject (91.1% and 80, 1%), therefore, the lack of communication from family members about the desire to donate their organs can reduce donation rates in the family environment.

In this research, it was also observed that academics belonging to the age group between 17 and 26 years old had the highest levels of intention to donate organs. Likewise, a study with a comparative analysis of the opinion and knowledge of the students of the last year of high school on transplantation and donation of organs and tissues, in a private school and a public school in Brazil, found that, of the 108 students interviewed who were in the 16 to 22 age group, 54% of students in private schools and 53% of students in public schools expressed the desire to donate their organs and tissues after death<sup>7</sup>.

Casarin<sup>8</sup>, showed in his study, carried out with 10 family members who authorized the donation of organs and tissues, that, despite the suffering of the death of a loved one, they did this act to save lives and help, in the broadest sense of the word and 80% of the interviewees who authorized the donation were over 30 years old, different from what was found in our survey, in which young people have more intention to donate.

The sample of academics surveyed shows positive attitudes towards organ donation and transplantation, because, in relation to levels of knowledge, we can say that

the population is informed about the topic, however, there are still gaps in the knowledge of these academics who must be resolved.

It was found that of the 128 (47%) interviewed, most understand that the lack of knowledge about the brain death criteria can negatively interfere in the decision to donate, since 195 (71.9%) academics demonstrated to know the criteria and, therefore, have the intention to donate, but the intention to donate is also high, even among the 45 (16.4%) who are unaware of the brain death criteria. In addition, the lack of confidence in the health system did not correlate with the non-intention to donate organs, as only 19 (6.9%) academics demonstrated that they did not trust the health system, however, it was found that the majority maintained the intention to donate your organs.

In this sense, according to Pacheco et al<sup>3</sup>, although donors and / or family members are aware of the desire of their loved ones to make the donation, they are still not informed about the appropriate means to fulfill this desire. In continuity, Costa et al<sup>9</sup> showed in their research with 203 nursing students, from two public universities in the São Francisco Valley, that 48.8% of the interviewees classified their knowledge on the subject as regular, but 74.4% agreed with the concept of brain death and 79.3% know the proper criteria to become a donor.

The presence of myths and fears (mutilated body, organ trafficking, etc.) proved to be one of the barriers to donation in 93 (34.1%) of the students. In relation to this issue, Maynard et al<sup>10</sup> affirm that the death of a loved one is almost always a traumatic and delicate moment for the family, when feelings such as pain, fear, despair, anger, and anguish mix. Almost instantly when a person is diagnosed with brain death, the family must be interviewed to know their decision regarding the donation of organs from the deceased relative, due to the rapid deterioration of the organs after death, which can make transplantation unfeasible.

Thus, it is essential to raise awareness among the population through training and information campaigns, as the existence of myths and beliefs on this topic demonstrates the need to inform and demystify, leading to a conscious and informed decision<sup>11</sup>.

#### V. CONCLUSION

The results demonstrate that most participants heard about organ donation and had a positive attitude towards donation. In addition, most participants were aware of the importance of donating. It is also worth mentioning that,

although most participants are aware of and intend to support organ donation, there is still mistrust in the processes carried out by the Health System, in addition to the lack of confidence in the diagnosis of brain death and in the presence of beliefs such as fear of have your body mutilated.

The knowledge and positive intention to donate organs and tissues of nursing students revealed in this study will be used as basic data to provide education on the subject, including content on organ transplantation in the regular nursing curriculum in the future, contributing to the expansion of donation.

This study had the following limitation: the involvement of nursing students based on only one institution of higher education, which makes it difficult to generalize the results. Therefore, it is recommended to carry out similar research in other institutions, both in the national scenario and in international educational institutions.

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